**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, DC 20554**

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| In the Matter of | ) | |
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| Globalstar, Inc. Petition for Notice of Inquiry | ) | Docket RM-11808 |
| Regarding the Operation of Outdoor U-NII-1 | ) | |
| Devices in the 5 GHz Band | ) | |

## OPPOSITION OF WI-FI ALLIANCE

Wi-Fi Alliance®[1/] submits this opposition to the above-referenced Petition for Notice of Inquiry[2/] in which Globalstar, Inc. ("Globalstar") asks the Commission to initiate a proceeding, the goal of which would be the re-evaluation of continued spectrum sharing between licensed Mobile Satellite Services ("MSS") and outdoor Unlicensed National Information Infrastructure ("U-NII") devices operating in the 5150-5250 MHz "U-NII-1" band.[3/] The Commission should promptly dismiss the Petition. The rules adopted in the *2014 5 GHz Order* – based on an extensive record – imposed meaningful restrictions on the use of the U-NII-1 band that were intended to protect Globalstar's operations. Globalstar has presented no evidence that there is

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1/ Wi-Fi®, the Wi-Fi logo, the Wi-Fi CERTIFIED logo, Wi-Fi Protected Access® (WPA), WiGig®, the Wi-Fi Protected Setup logo, Wi-Fi Direct®, Wi-Fi Alliance®, WMM®, Miracast®, and Wi-Fi CERTIFIED Passpoint® , and Passpoint® are registered trademarks of Wi-Fi Alliance. Wi-Fi CERTIFIED™, Wi-Fi Protected Setup™, Wi-Fi Multimedia™, WPA2™, Wi-Fi CERTIFIED Miracast™, Wi-Fi ZONE™, the Wi-Fi ZONE logo, Wi-Fi Aware™, Wi-Fi CERTIFIED HaLow™, Wi-Fi HaLow™, Wi-Fi CERTIFIED WiGig™, Wi-Fi CERTIFIED Vantage™, Wi-Fi Vantage™, Wi-Fi CERTIFIED TimeSync™, Wi-Fi TimeSync™, Wi-Fi CERTIFIED Location™, Wi-Fi CERTIFIED Home Design™, Wi-Fi CERTIFIED Agile Multiband™, Wi-Fi CERTIFIED Optimized Connectivity™, and the Wi-Fi Alliance logo are trademarks of Wi-Fi Alliance.

2/ *Petition for Notice of Inquiry of Globalstar, Inc.*, RM-11808 (May 21, 2018) ("Petition"); Public Notice, Consumer & Governmental Affairs Bureau Reference Information Center Petition for Notice of Inquiry, Rep. No. 3092 (rel. June 6, 2018).

3/ *See Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, First Report and Order, 29 FCC Rcd 4127 (2014) ("*2014 5 GHz Order*").

any relationship between those rules and the changes to the radiofrequency environment that it has allegedly observed. In contrast, the United States has made a contribution to the International Telecommunications Union ("ITU") based on precisely the opposite premise – that sharing of U-NII-1 spectrum between MSS and radio local area networks ("RLANs") using the existing U.S. regulatory framework can be extended worldwide. Initiation of any proceeding now based on the Petition will not only retard future development and investment in the U-NII-1 band by creating uncertainty, but will also undermine the U.S. position expressed at the ITU.

## I. INTRODUCTION

Wi-Fi Alliance is a global, non-profit industry association of over 800 leading companies from dozens of countries devoted to connecting everyone and everything everywhere.[4/] With technology development, market building, and regulatory programs, Wi-Fi Alliance has enabled widespread adoption of Wi-Fi® worldwide, certifying thousands of Wi-Fi products each year. Certified, interoperable Wi-Fi systems are critical to the Nation's wireless ecosystem, key components of the country's economic growth, and catalysts for technological innovation. The mission of Wi-Fi Alliance is to provide a highly effective collaboration forum for Wi-Fi matters, grow the Wi-Fi industry, lead industry growth with new technology specifications and programs, support industry-agreed standards, and deliver greater product connectivity through interoperability, testing, and certification.

After years of opposition from Globalstar, the Commission's 2014 decision was a watershed for the Wi-Fi industry and the American public by increasing the utility of 5 GHz spectrum for Wi-Fi. In that decision, the Commission recognized that demand for Wi-Fi connectivity could not be accommodated by the spectrum that was then available for unlicensed

[4/] WI-FI ALLIANCE: WHO WE ARE, https://www.wi-fi.org/who-we-are (last visited June 27, 2018).

operations, under the then-applicable rules.[5/] The decision recognized that future (and now current) applications will rely on wider bandwidth channels and outdoor deployments that can be best supported by greater harmonization of the technical parameters permitted across the 5 GHz sub-bands.[6/] Based on an extensive record, the Commission adopted reasonable changes to its rules allowing outdoor use of the U-NII-1 band, with strong protections for Globalstar's operations.[7/] Less than four years after the rules became effective, with initial implementation still underway, and no demonstration that the new rules have resulted in increased interference to its operations, Globalstar is now seeking to undermine the Commission's decision.[8/] The Commission should promptly reject the Petition.

## II. U.S. POLICY IS CONTRARY TO THE PREMISE OF GLOBALSTAR'S REQUEST

Globalstar asks that the Commission initiate a proceeding to validate its unsupported technical claims that the 2014 rule changes pose a threat to its operations. Wi-Fi Alliance recognizes that Part 15 devices must not cause harmful interference to Globalstar and the Commission must enforce this regulatory requirement. However, currently, there is no viable evidence of such interference. In fact, the United States position, expressed internationally, is based on a technical conclusion that is precisely the opposite of what Globalstar asserts.[9/] The

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5/ *See 2014 5 GHz Order*, ¶ 9.

6/ *Id.* ¶¶ 1, 9.

7/ *Id.* ¶¶ 25-37.

8/ *See Petition for Notice of Inquiry of Globalstar, Inc.*, RM-11808, at 2 (May 21, 2018) ("The Commission's failure now to take "corrective action" will lead to harmful interference to Globalstar operations"); Public Notice, Consumer & Governmental Affairs Bureau Reference Information Center Petition for Notice of Inquiry, Rep. No. 3092 (rel. June 6, 2018).

9/ *See* Radiocommunication Study Groups, Preliminary Draft CPM Text for WRC-19 Agenda Item 1.16, (May 8, 2018); Sharing and Compatibility Study Between WAS/RLAN Applications and NGSO Systems in the Mobile Satellite Service with FSS Feeder Links Operating in the 5091-5250 MHz Band, Document 5A/727-E (May 9, 2018).

United States position is that coexisting MSS and outdoor RLAN use of the U-NII-1 band is feasible globally. As recently as May 2018, the United States submitted a contribution to ITU Working Party 5A in preparation for World Radiocommunication Conference 2019 (WRC-19) with a study analyzing compatibility between MSS feeder links and RLAN outdoor operations in the U-NII-1 band.[10/] This U.S. study confirms that RLAN operations under the existing U-NII-1 band rules, both outdoors and indoors, pose "no harmful interference to the single MSS system using the 5 150–5 250 MHz band for FSS feeder links" (*i.e.*, Globalstar).[11/]

Globalstar's Petition is not only contrary to the technical conclusions on which the United States position is based, but it undermines the U.S. position expressed to the ITU. The Commission should not sanction this attempt to undermine U.S. credibility. Instead, the Commission should promptly reject the Globalstar Petition in order to demonstrate that the U.S. is not departing from its international position. The U.S. submission – which represents an analysis driven by sound engineering and the public interest – must take precedence over Globalstar's allegations motivated by its own commercial interest.

## III. 5 GHz SPECTRUM IS CRITICAL FOR THE GROWTH OF WI-FI

The Commission made its 2014 decision after significant deliberations and after establishing safeguards to protect Globalstar's operations. The Commission considered all comments, multiple technical analyses provided by Globalstar, NCTA, and others, and numerous

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[10/] Radiocommunication Study Groups, Preliminary Draft CPM Text for WRC-19 Agenda Item 1.16, (May 8, 2018); Sharing and Compatibility Study Between WAS/RLAN Applications and NGSO Systems in the Mobile Satellite Service with FSS Feeder Links Operating in the 5091-5250 MHz Band, Document 5A/727-E (May 9, 2018).

[11/] Radiocommunication Study Groups, Preliminary Draft CPM Text for WRC-19 Agenda Item 1.16, at 5 (May 8, 2018); Sharing and Compatibility Study Between WAS/RLAN Applications and NGSO Systems in the Mobile Satellite Service with FSS Feeder Links Operating in the 5091-5250 MHz Band, Document 5A/727-E, at 35 (May 9, 2018).

*ex parte* presentations.[12/] To assuage Globalstar's concerns, the Commission established a strict antenna requirement limiting the energy radiated toward space. It allowed fixed access point outdoor operations at a conducted power level of up to 1 W (30 dBm), and a PSD of 17 dBm/MHz with an allowance for a 6 dBi antenna gain (i.e. a total 36 dBm EIRP), and limited the maximum EIRP above 30 degrees elevation to 125 mW (21 dBm) EIRP.[13/]

Since that time, demand for Wi-Fi has only accelerated. Wi-Fi is now the gateway for over half of Internet access, with traffic from Wi-Fi and mobile devices accounting for over 60 percent of all IP traffic in 2016.[14/] By 2021, global mobile data traffic is expected to grow to 48 exabytes per month, a sevenfold increase over 2016.[15/] Wi-Fi continues to be a critical component of U.S. wireless broadband infrastructure: it is the predominant on- and off-ramp for Internet access from U.S. homes and businesses;[16/] it supports a significant portion of wireless carriers' network traffic through offload;[17/] and it is, and will continue to be, an important part of

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12/ *See 2014 5 GHz Order*, ¶ 31; *see also NCTA Ex Parte*, ET Docket No. 13-49, (Sept. 18, 2013); *NCTA Ex Parte* (Sept. 23, 2013); *NCTA Ex Parte* (Oct. 22, 2013); *NCTA Ex Parte* (Oct. 28, 2013); *NCTA Ex Parte* (Jan. 17, 2014); *NCTA Ex Parte* (Jan. 22, 2014); *NCTA Ex Parte* (Feb. 3, 2014); *NCTA Ex Parte* (Feb. 26, 2014); *Globalstar Ex Parte* (Nov. 22, 2013); *Globalstar Supplemental Comments* (Nov. 29, 2013); *Globalstar Supplemental Comments* (Dec. 13, 2013); *Globalstar Ex Parte* (Jan. 28, 2014); *Globalstar Investors Ex Parte Filings* (Jan. 31, 2014); *Globalstar Ex Parte* (Feb. 7, 2014); *Globalstar Ex Parte* (Feb. 14, 2014); *Globalstar Ex Parte* (Feb. 20, 2014).

13/ *See 2014 5 GHz Order*, ¶¶ 36-37.

14/ CISCO, *Cisco Visual Networking Index: Forecast and Methodology, 2016–2021* (Sept. 15, 2017), https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.html.

15/ *Id*.

16/ CISCO, *VNI Forecast Highlights Tool, North America, United States, Wired Wi-Fi and Mobile Growth* (2017), http://www.cisco.com/c/m/en_us/solutions/service-provider/vni-forecast-highlights.html (select "United States" from the "North America" drop-down menu, select "2021 Forecast Highlights" and expand "Wired Wi-Fi and Mobile Growth.").

17/ *See, e.g., Comments of CTIA-The Wireless Association*, ET Docket 15-105 (filed June 11, 2015) (noting that "Wi-Fi technologies have been and will continue to be an integral part of consumers' wireless usage"); and *Comments of T-Mobile USA, Inc.*, ET Docket 15-105 (filed June 11, 2015) (noting that "Wi-Fi is a critical component of its network" and that Wi-Fi calling and texting is a function on many of its devices).

the architecture of the Internet of Things.[18/] In short, ensuring that there is sufficient spectrum for Wi-Fi to meet dramatically expanding demand is in the public interest, a fact that members of the Commission and Congress have recognized.[19/]

The evolution of Wi-Fi from a nascent technology to a critical component of broadband wireless connectivity infrastructure, however, has not been met with a corresponding increase in spectrum access. Unfortunately, efforts to make additional spectrum available for Wi-Fi have produced limited results. The recent National Telecommunications and Information Administration ("NTIA") action foreclosing unlicensed operations in the 5.35-5.47 GHz (U-NII-2B) band significantly disrupted Wi-Fi industry plans for expanded use of mid-band spectrum.[20/]

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18/ Most IoT connections already travel over Wi-Fi networks. Wi-Fi Alliance is developing a standard for IoT operations in sub-1 GHz spectrum which will allow for low-power, long-distance operations for machine-to-machine connections. *See* WI-FI ALLIANCE, DISCOVER WI-FI: HALOW, http://www.wi-fi.org/discover-wi-fi/wi-fi-halow (last visited June 27, 2018).

19/ *See, e.g.*, Michael O'Rielly, *This is World Wi-Fi Day, let's celebrate the progress we've made*, THE HILL (June 19, 2017) http://thehill.com/blogs/pundits-blog/technology/338358-this-world-wi-fi-day-lets-celebrate-the-progress-weve-made ("To say that Wi-Fi is a critical component of Internet access in today's always-connected society doesn't do it justice. . . . But more needs to be done to promote future opportunities. This includes making more spectrum bands available for unlicensed use to allow super-wide Wi-Fi channels."); Statement of Commissioner Rosenworcel before the House Subcommittee on Communications and Technology, Mar. 22, 2016 ("Before we overwhelm Wi-Fi as we know it, we need more efforts to secure more unlicensed spectrum."); *Statement of Commissioner Ajit Pai*, *In Re Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands* FCC 15-99 (Aug. 11, 2015) ("I am a big proponent of making more spectrum available for unlicensed use"); *see also, Consolidated Appropriations Act 2018,* Pub. L. No. 115-141, div. P, tit. VI, § 603 (requiring the Commission to identify a minimum of 100 megahertz of spectrum below 8 GHz for unlicensed operation by 2022); § 611 (requiring the Commission to evaluate unlicensed operations in guard bands); § 617 (making the promotion of unlicensed spectrum the official policy of the United States and charging the Commission with making unlicensed spectrum a priority); and § 618 (requiring the Commission to work with NTIA to draft a "National Plan for Unlicensed Spectrum" by September 23, 2020 which will lead to increased unlicensed spectrum access); and *Middle Class Tax Relief Act of 2012*, Pub. Law 112-96 §§ 6406 and 6407 (requiring unlicensed operations in the 5 GHz Band and guard bands).

20/ *In the Matter of Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, Notice of Inquiry*, GN Docket No. 17-183 ¶ 28 (rel. Aug. 3, 2017); *See* Lawrence E. Strickling, Assistant Secretary of Commerce for Communications and Infrastructure, Remarks on the 5G Wireless Future and the Role of the Federal Government at the Hudson Institute (Dec. 16, 2016), https://www.ntia.doc.gov/speechtestimony/2016/remarks-assistant-secretary-strickling-5g-wireless-future-and-role-federal.

Although Wi-Fi Alliance has urged, and continues to urge, the Commission to make the U-NII-4 band available for unlicensed operations, its future remains uncertain.[21/] It has been nearly twenty years since a significant amount of mid-band spectrum has been made available for unlicensed operations – during which time the number of devices and applications relying on this spectrum has grown exponentially.

That is why the Commission's 2014 action was so critical. Demand for Wi-Fi connectivity necessitates both indoor and outdoor applications. For example, campus-settings require Wi-Fi access within and between buildings. Wi-Fi is also used in a variety of business and industrial settings requiring outdoor use. The Commission further facilitated use of these wider-bandwidth technologies by aligning U-NII-1 operating rules with other 5 GHz sub-bands. The Commission's 2014 action also made *5 GHz* spectrum, with wider available bandwidths – on which newer Wi-Fi technologies rely – available for greater outdoor use. While Wi-Fi requires significant additional spectrum capacity, adoption of the Globalstar Petition's requests would eviscerate the little progress that has been made to date. Instead of making more spectrum, with wider bandwidths, available for Wi-Fi, Globalstar's request would do the opposite by diminishing access to the U-NII-1 band for Wi-Fi devices. Such a result would be contrary to the public interest.

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[21/] The Commission's testing for U-NII-4 Devices to determine compatibility with Dedicated Short Range Communications systems on automobiles is ongoing. *See Office of Engineering and Technology Announces Schedule for Testing Prototype U-NII-4 Devices*, Public Notice (rel. Oct. 7, 2016).

## IV. A NOTICE OF INQUIRY WILL HARM WI-FI AND THE AMERICAN PUBLIC AND WASTE COMMISSION RESOURCES

As noted above, the premises of U.S. contributions to the ITU contradict Globalstar's technical analyses and the Commission should reject the Petition on that basis alone.[22/] However, it would also be contrary to public policy for the Commission to initiate a Notice of Inquiry in response to the Petition.

The regulatory uncertainty created by the issuance of a Notice of Inquiry – in the absence of a clear demonstration that the current regulatory scheme is flawed and has resulted in increased harmful interference to licensed services – would be highly disruptive to the future of the Wi-Fi industry. Innovators should be able to rely on the stability created by the *2014 5 GHz Order*, less than four years ago and after a full and deliberative process by the Commission. In fact, the Wi-Fi industry has done just that – by devoting significant resources to develop, manufacture, and market equipment that is compliant with the rules adopted in the *2014 5 GHz Order*. Any indication that the Commission is inclined to depart from its decisions regarding the U-NII-1 band will cause technology developers, manufacturers, and operators to re-evaluate their plans and investments in the U-NII-1 band.

The Commission has long recognized that the "continued success of the mobile telecommunications industry is significantly linked to the ongoing flow of investment capital into the industry," and the Commission seeks to foster this investment by choosing a regulatory path intended to establish "a stable, predictable regulatory environment that facilitates prudent

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22/ *See* Radiocommunication Study Groups, Preliminary Draft CPM Text for WRC-19 Agenda Item 1.16, Document 5A/714-E (May 8, 2018); *see also* Sharing and Compatibility Study Between WAS/RLAN Applications and NGSO Systems in the Mobile Satellite Service with FSS Feeder Links Operating in the 5091-5250 MHz Band, Document 5A/727-E (May 9, 2018).

business planning."[23/] While this reduction in Wi-Fi investment may be precisely what Globalstar hopes to achieve, the Commission should not permit Globalstar to accomplish indirectly – through a requested Notice of Inquiry – what it was unable to achieve directly by attempting to thwart the Commission's proposals less than four years ago. This issue was decided upon a robust record and thorough analysis.[24/] Without the availability of the 5.150-5.250 GHz band under the current rules, American consumers will see Wi-Fi capacity shrink, while demand is growing – inhibiting connectivity across the country.

Further, Globalstar's Petition is inconsistent with the public interest. Globalstar effectively asks the Commission to conduct a fishing expedition on its behalf. However, the Commission has limited resources and should not initiate open-ended proceedings primarily to support a company's proprietary interests.

## V. CONCLUSIONS

The rules adopted in the *2014 5 GHz Order* advance the policy objectives of the recently enacted Ray Baum's Act.[25/] To reconsider these rules based on the dubious evidence provided by Globalstar would be contrary to the public interest and U.S. policy. Moreover, Globalstar's assertions directly contradict official positions submitted by the U.S. to the ITU in preparation for WRC-19. Those positions, as well as the balance adopted by the Commission in the *2014 5 GHz Order*, were based on sound scientific analysis, and in the case of the Commission, a robust administrative record. Globalstar has presented no reason to reconsider those positions, and even moving forward with a Notice of Inquiry on this issue would threaten investment in Wi-Fi by

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23/ *Restoring Internet Freedom*, Declaratory Ruling, Report and Order, and Order, WC Docket No. 17-108, FCC 17-166, ¶ 422 (rel. Jan. 4, 2018).

24/ *See 2014 5 GHz Order*, ¶¶ 25-37.

25/ Pub. L. No. 115-141, div. P, tit. VI, § 617.

unsettling past Commission action. The Commission should promptly reject Globalstar's Petition for Notice of Inquiry.

Respectfully submitted,

*/s/ Alex Roytblat*

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July 6, 2018

## CERTIFICATE OF SERVICE

I, Elana Reman Safner, hereby certify that on this 6th day of July, 2018, copies of the foregoing Opposition of Wi-Fi Alliance to the Petition for Notice of Inquiry of Globalstar, Inc. were served by first-class U.S. mail, postage prepaid, upon:

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